

## Department of Energy

## § 835.401

received during the year shall be averaged over the 100 cm<sup>2</sup> of the skin receiving the maximum dose, added to any uniform dose equivalent also received by the skin, and recorded as the shallow dose equivalent to any extremity or skin for the year.

(2) *Area of skin irradiated is 10 cm<sup>2</sup> or more, but is less than 100 cm<sup>2</sup>.* The non-uniform dose equivalent (H) to the irradiated area received during the year shall be added to any uniform dose equivalent also received by the skin and recorded as the shallow dose equivalent to any extremity or skin for the year. H is the dose equivalent averaged over the 1 cm<sup>2</sup> of skin receiving the maximum absorbed dose, D, reduced by the fraction f, which is the irradiated area in cm<sup>2</sup> divided by 100 cm<sup>2</sup> (i.e.,  $H=fD$ ). In no case shall a value of f less than 0.1 be used.

(3) *Area of skin irradiated is less than 10 cm<sup>2</sup>.* The non-uniform dose equivalent shall be averaged over the 1 cm<sup>2</sup> of skin receiving the maximum dose. This dose equivalent shall:

(i) Be recorded in the individual's occupational exposure history as a special entry; and

(ii) Not be added to any other shallow dose equivalent to any extremity or skin recorded as the dose equivalent for the year.

### § 835.206 Limits for the embryo/fetus.

(a) The dose equivalent limit for the embryo/fetus from the period of conception to birth, as a result of occupational exposure of a declared pregnant worker, is 0.5 rem (0.005 sievert).

(b) Substantial variation above a uniform exposure rate that would satisfy the limits provided in § 835.206(a) shall be avoided.

(c) If the dose equivalent to the embryo/fetus is determined to have already exceeded 0.5 rem (0.005 sievert) by the time a worker declares her pregnancy, the declared pregnant worker shall not be assigned to tasks where additional occupational exposure is likely during the remaining gestation period.

### § 835.207 Occupational dose limits for minors.

The dose equivalent limits for minors occupationally exposed to radiation

and/or radioactive materials at a DOE activity are 0.1 rem (0.001 sievert) total effective dose equivalent in a year and 10% of the occupational dose limits specified at § 835.202(a)(3) and (a)(4).

[63 FR 59682, Nov. 4, 1998]

### § 835.208 Limits for members of the public entering a controlled area.

The total effective dose equivalent limit for members of the public exposed to radiation and/or radioactive material during access to a controlled area is 0.1 rem (0.001 sievert) in a year.

[63 FR 59682, Nov. 4, 1998]

### § 835.209 Concentrations of radioactive material in air.

(a) The derived air concentration (DAC) values given in appendices A and C of this part shall be used in the control of occupational exposures to airborne radioactive material.

(b) The estimation of internal dose shall be based on bioassay data rather than air concentration values unless bioassay data are:

- (1) Unavailable;
- (2) Inadequate; or

(3) Internal dose estimates based on air concentration values are demonstrated to be as or more accurate.

[58 FR 65485, Dec. 14, 1993, as amended at 63 FR 59682, Nov. 4, 1998]

## Subpart D [Reserved]

## Subpart E—Monitoring of Individuals and Areas

### § 835.401 General requirements.

(a) Monitoring of individuals and areas shall be performed to:

- (1) Demonstrate compliance with the regulations in this part;
- (2) Document radiological conditions;
- (3) Detect changes in radiological conditions;
- (4) Detect the gradual buildup of radioactive material;
- (5) Verify the effectiveness of engineering and process controls in containing radioactive material and reducing radiation exposure; and
- (6) Identify and control potential sources of individual exposure to radiation and/or radioactive material.